

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1 1. (Currently amended) A fan assembly for use in
2 ventilation of a building, which comprises:

3 (a) a housing having an outlet and an inlet with
4 an inner cavity extending between the inlet and the outlet,
5 the inner cavity having a center portion ~~with a circular~~
6 ~~cross-section;~~

7 (b) a motor mounted in the inner cavity of the
8 housing spaced between the inlet and the center portion;

9 (c) a center hub with a first end and a second
10 end mounted in the inner cavity such that the first end is
11 facing the outlet of the housing and the second end is
12 facing the inlet of the housing and connected to the motor;
13 and

14 (d) blades having opposed first and second ends
15 with ~~first and second sides~~ a leading edge and a trailing
16 edge extending between the ends and mounted at the first
17 end on the center hub such that the ~~first side~~ trailing
18 edge is adjacent the first end of the hub and the ~~second~~

19 ~~side~~ leading edge is adjacent the second end of the hub
20 wherein the ~~first side~~ trailing edge of the blades adjacent
21 the first end of the blade has a rounded protrusion spaced
22 apart from the hub.

1 2. (Currently amended) The fan assembly of Claim 1 wherein
2 a width of the blades between the ~~sides~~ edges adjacent the
3 first end is less than a width of the blades between the
4 ~~sides~~ edges adjacent the second end.

1 3. (original) The fan assembly of Claim 1 wherein the
2 blades have an airfoil shape.

1 4. (Currently amended) The fan assembly of Claim 3 wherein
2 a thickness of the blades varies smoothly from the ~~first~~
3 ~~side~~ trailing edge to the ~~second side~~ leading edge.

1 5. (Currently amended) The fan assembly of Claim 1 wherein
2 the blades have a machete-like tip on the ~~first side~~
3 trailing edge adjacent the second end of the blades.

1 6. (Currently amended) The fan assembly of Claim 1 wherein
2 there are three blades, wherein a width of the blades
3 between the ~~sides~~ leading edge and the trailing edge
4 adjacent the first end is less than a width of the blades
5 between the ~~sides~~ leading edge and the trailing edge
6 adjacent the second end, wherein the blades have a machete-
7 like tip on the ~~first side~~ trailing edge adjacent the
8 second end of the blades and wherein the blades have an
9 airfoil shape.

1 7. (original) The fan assembly of Claim 1 wherein each
2 blade is configured such that when the blades rotate, the
3 axial velocity of air coming off the blades is essentially
4 constant along most of a length of the blades from the
5 second end of the blades to the first end of the blades.

1 8. (original) The fan assembly of Claim 1 wherein the
2 length of the blades is such that a distance between the
3 center portion of the housing and the second end of each
4 blade is between 0.4% and 0.8% of a diameter of a path of
5 the blades.

1 9. (original) The fan assembly of Claim 1 wherein the
2 inlet of the housing has a square cross-section.

1 10. (original) The fan assembly of Claim 1 wherein a
2 shoulder is formed in the inner cavity of the housing at an
3 intersection of the inlet and the center portion and
4 wherein the shoulder is rounded such as to reduce
5 disruption of air entering the center portion from the
6 inlet.

1 11. (Previously presented) The fan assembly of Claim 1
2 wherein a bracket is mounted adjacent the center portion,
3 wherein the motor is mounted on the bracket and wherein the
4 center hub is connected to the motor such that the blades
5 are completely within the center portion of the inner
6 cavity.

1 12. (Previously presented) The fan assembly of Claim 11
2 wherein the bracket includes a first and second arm which
3 extend across the inner cavity of the housing, wherein the
4 motor has a shaft and wherein the motor is mounted on the
5 bracket such that the shaft of the motor is co-axial with
6 an axial center of the center portion of the inner cavity.

1 13. (Previously presented) The fan assembly of Claim 12
2 wherein the first and second arms have opposed ends with a
3 front side extending between the ends, wherein the arms are
4 mounted in the inner cavity such that the front side is
5 facing the inlet of the housing and wherein the front side
6 of the first and second arms of the bracket is radiused to
7 reduce disruption of air entering the center portion from
8 the inlet.

1 14. (original) The fan assembly of Claim 13 wherein the
2 first and second arms of the bracket each include opposed
3 end sections with a center section spaced therebetween
4 wherein the end sections extend outward from the center
5 section such that when the bracket is mounted in the inner
6 cavity, planes formed by the arms extend through and
7 intersect at the axial center of the center portion of the
8 inner cavity.

1 15. (original) The fan assembly of Claim 1 wherein the
2 housing has grooves adjacent the inner cavity extending at
3 an angle between the center portion of the inner cavity and
4 the outlet of the housing.

1 16. (Previously presented) The fan assembly of Claim 15
2 wherein the outlet of the housing includes a discharge cone
3 having a conical shape and wherein the grooves are angled
4 in a clockwise direction around the discharge cone.

1 17. (original) The fan assembly of Claim 1 wherein a
2 backdraft assembly is mounted at the inlet of the housing,
3 wherein the backdraft assembly includes a frame with
4 shutter blades pivotably mounted on the frame, wherein the
5 shutter blades have an airfoil shape with a leading edge
6 and a trailing edge and are mounted at the leading edge to
7 the frame and wherein a flexible flap is mounted on the
8 trailing edge such that when the shutter blades are in a
9 closed position, the flexible flap of one shutter blade
10 contacts a next adjacent shutter blade for sealing the
11 backdraft assembly to prevent air in the inner cavity of
12 the housing from moving out of the housing through the
13 inlet and the backdraft assembly and wherein a side of the
14 frame opposite the inlet is radiused to reduce disruption
15 of air entering the fan assembly.

1 18. (original) The fan assembly of Claim 17 wherein the
2 backdraft assembly is removable and wherein the inner
3 cavity of the housing adjacent the inlet is provided with
4 toggle latches which engage a strike mounted on the frame
5 of the backdraft assembly to secure the backdraft assembly
6 on the inlet.

1 19. (original) The fan assembly of Claim 17 wherein the
2 frame of the backdraft assembly has radiused edges on an
3 outside surface opposite the inlet of the housing to reduce
4 disruption of air entering the housing.

1 20. (New) A fan assembly for use in ventilation of a
2 building, which comprises:

3 (a) a housing having an outlet and an inlet with
4 an inner cavity extending between the inlet and the outlet,
5 the inner cavity having a center portion;

6 (b) a motor mounted in the inner cavity of the
7 housing spaced between the inlet and the center portion;

8 (c) a center hub with a first end and a second
9 end mounted in the inner cavity such that the first end is
10 facing the outlet of the housing and the second end is
11 facing the inlet of the housing and connected to the motor;
12 and

13 (d) blades having opposed first and second ends
14 with a leading edge and a trailing edge extending between
15 the ends and mounted at the first end on the center hub
16 such that the trailing edge is adjacent the first end of
17 the hub and the leading edge is adjacent the second end of
18 the hub wherein the trailing edge of the blades adjacent
19 the first end of the blade has a rounded protrusion wherein
20 a width of the blades between the edges adjacent the first
21 end is less than a width of the blades between the edges
22 adjacent the second end.

1 21. (New) A fan assembly for use in ventilation of a
2 building, which comprises:

3 (a) a housing having an outlet and an inlet with
4 an inner cavity extending between the inlet and the outlet,
5 the inner cavity having a center portion;

6 (b) a motor mounted in the inner cavity of the
7 housing spaced between the inlet and the center portion;

8 (c) a center hub with a first end and a second
9 end mounted in the inner cavity such that the first end is
10 facing the outlet of the housing and the second end is
11 facing the inlet of the housing and connected to the motor;
12 and

13 (d) blades having opposed first and second ends
14 with a leading edge and a trailing edge extending between
15 the ends and mounted at the first end on the center hub
16 such that the trailing edge is adjacent the first end of
17 the hub and the leading edge is adjacent the second end of
18 the hub wherein the trailing edge of the blades adjacent
19 the first end of the blade has a rounded protrusion and
20 wherein the rounded protrusion of the blades does not
21 extend inward toward the hub.

1 22. (New) A fan assembly for use in ventilation of a
2 building, which comprises:

3 (a) a housing having an outlet and an inlet with
4 an inner cavity extending between the inlet and the outlet,
5 the inner cavity having a center portion;

6 (b) a motor mounted in the inner cavity of the
7 housing spaced between the inlet and the center portion;

8 (c) a center hub with a first end and a second
9 end mounted in the inner cavity such that the first end is
10 facing the outlet of the housing and the second end is
11 facing the inlet of the housing and connected to the motor;
12 and

13 (d) blades having opposed first and second ends
14 with a leading edge and a trailing edge extending between
15 the ends and mounted at the first end on the center hub
16 such that the trailing edge is adjacent the first end of
17 the hub and the leading edge is adjacent the second end of
18 the hub wherein the trailing edge of the blades adjacent
19 the first end of the blade has a rounded protrusion and
20 wherein the leading edge of the blades does not extend
21 beyond the first end of the hub toward the outlet of the
22 housing.